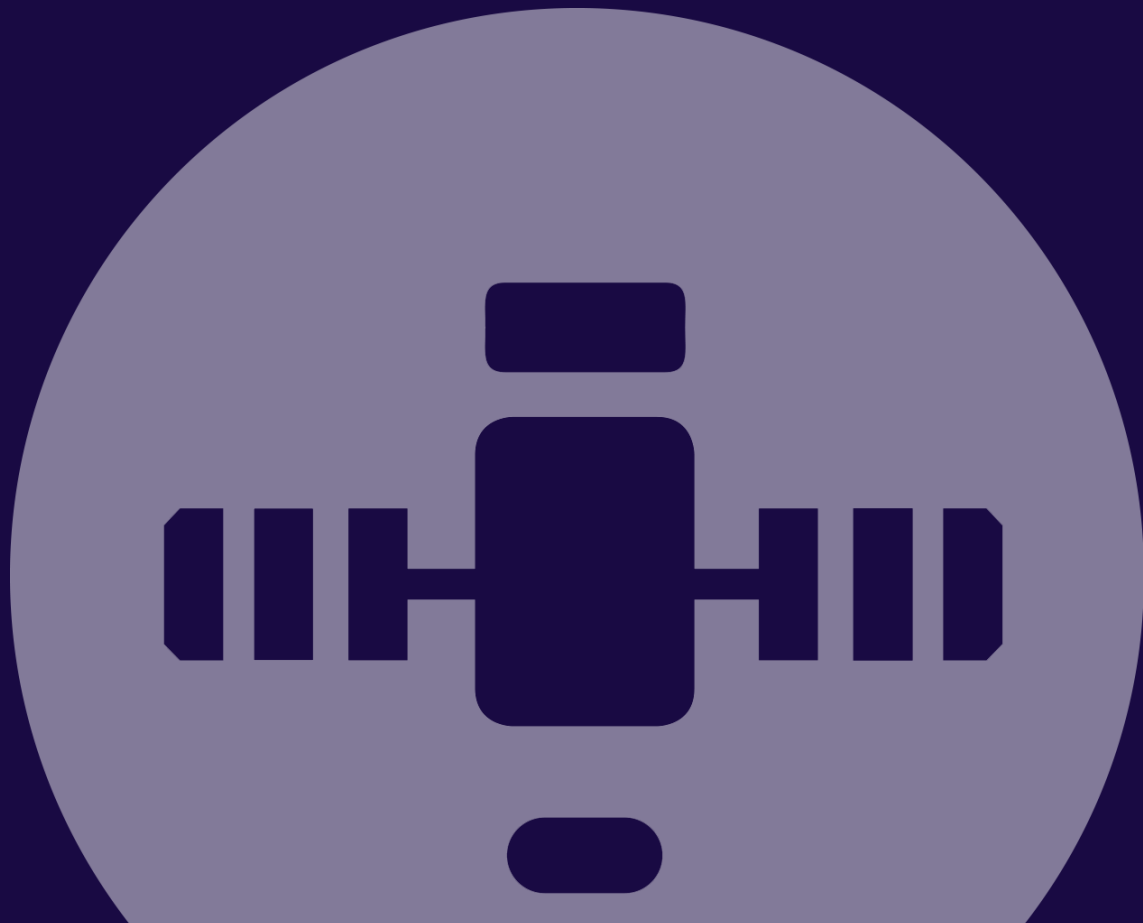


Spaced based ADS-B

Introducing Global Air Traffic Surveillance



ADS-B at a glance

Existing Technology

Automatic data broadcast every second

Unexpected disruption of broadcast
indicative of a critical event

Equipment becomes mandatory

in the US, Europe and Australia over the
next 6 years



Surveillance Data

Position

Identity

Category

Speed

Altitude

existing terrestrial infrastructure in place to handle ADS-B data

ADS-B transponders are ***already installed*** on over 90% of all airliners

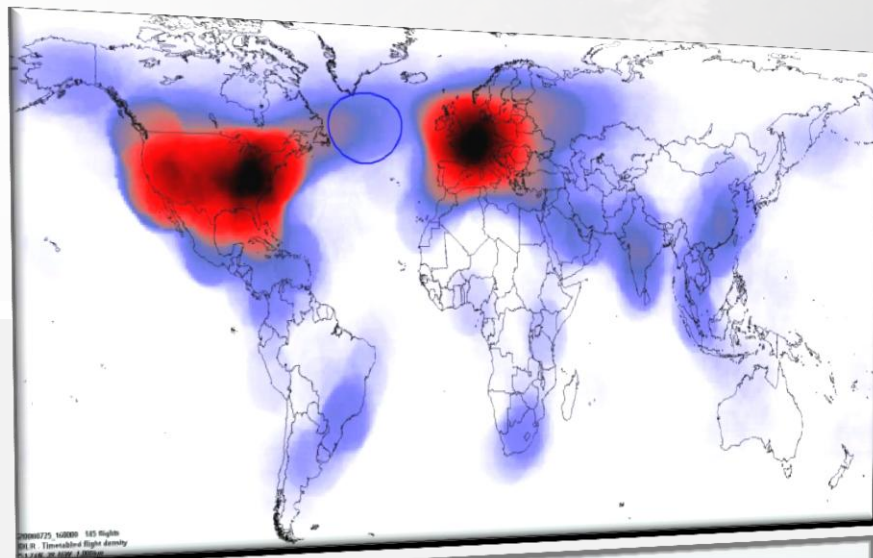
Satellite ADS-B

Takes ADS-B-technology to space

Update interval of at least 15 seconds,
data provided in near real time

Invented by TAS-D,
patented in most countries incl. US, Europe,
Russia, Australia

Existing aircraft equipment is fully compatible with space-based ADS-B



Aircraft traffic density

Key Benefits

Almost 100% global coverage

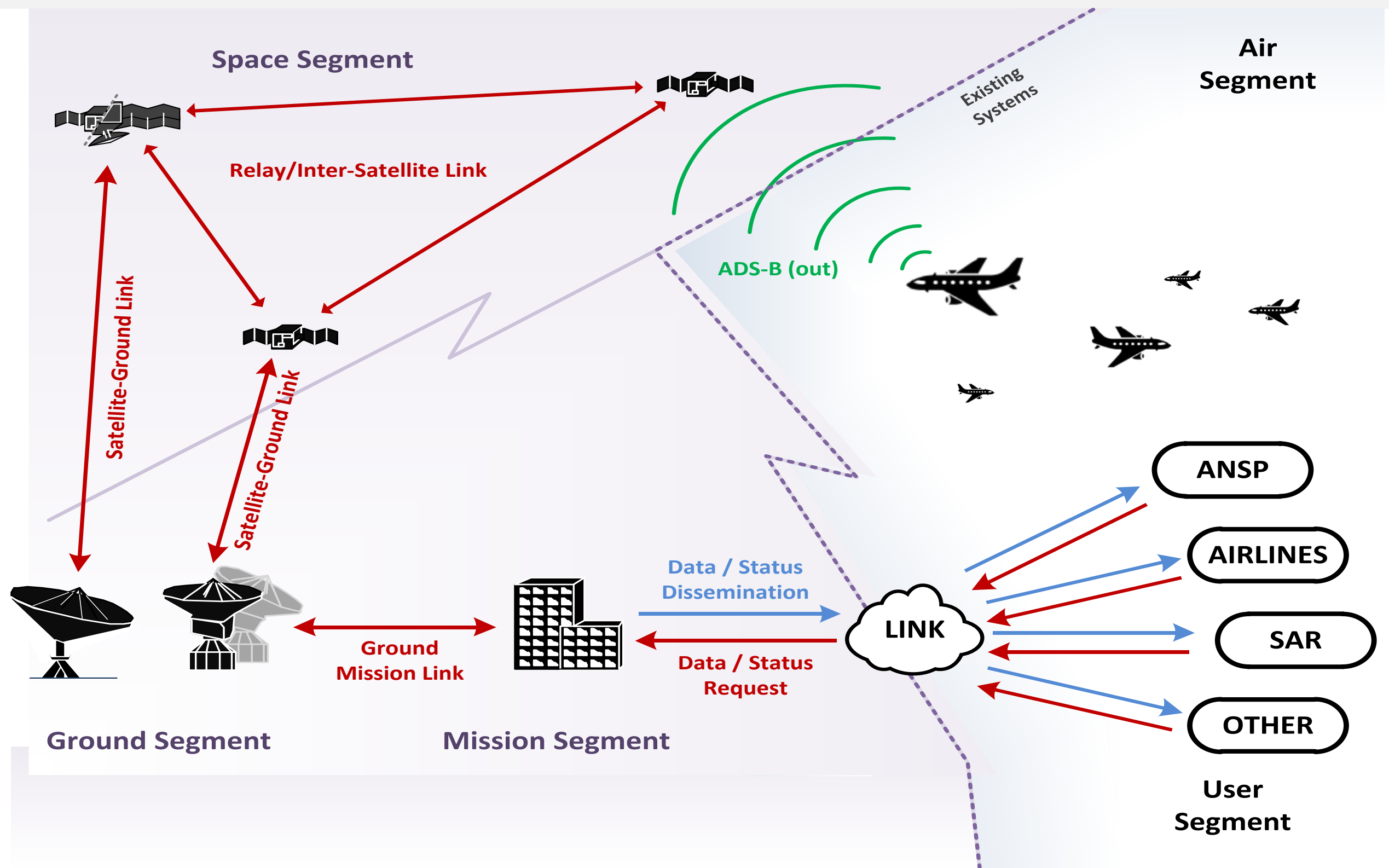
Turns NRA into radar controlled airspace

Brings surveillance to oceans
and scarcely populated areas

More efficient use of airspace
to save fuel and reduce carbon
emissions

Improved safety and security
through global flight tracking.

Additional redundancy layer with
integration into global ATM systems



System Architecture designed to provide data like any other surveillance sensor for easy system integration!

Key Advantages

Primary mission focussed on ADS-B

Constellation designed to ATS, Airlines, ICAO standards and specifications

Independent

from technical and commercial constraints of another payload

Safety Layer

complementary to other space based global flight tracking systems

Opportunities

Secondary payload

space available for compatible payloads

Tailored

to customer specifications

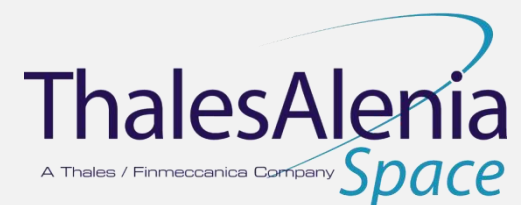
Complementary

to other surveillance systems in already radar controlled airspace

Only a primary payload can guarantee the operational safety and availability required by air navigation services!

Welcome

To Europe's Global Surveillance Team



Team Facts

Thales Alenia Space Deutschland

SES TechCom

DLR

*Consortium formed through MoU in
October, 2013*

With equal rights and responsibilities

Objectives

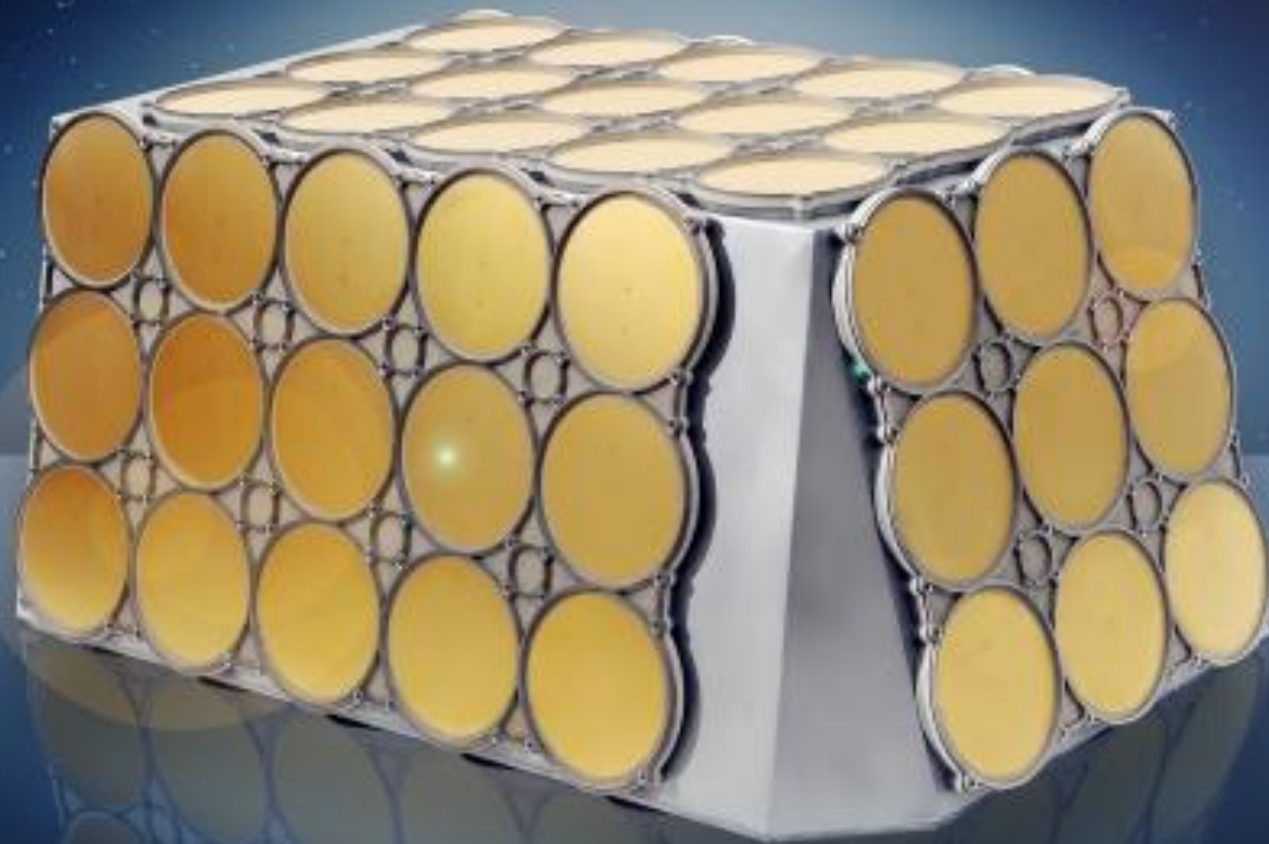
To jointly develop
the world's next generation
surveillance system

To combine our expertise

To complement
other surveillance solutions

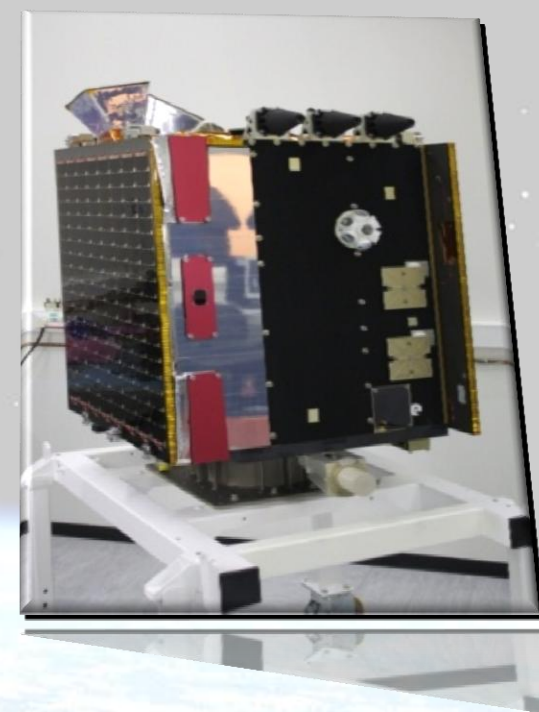
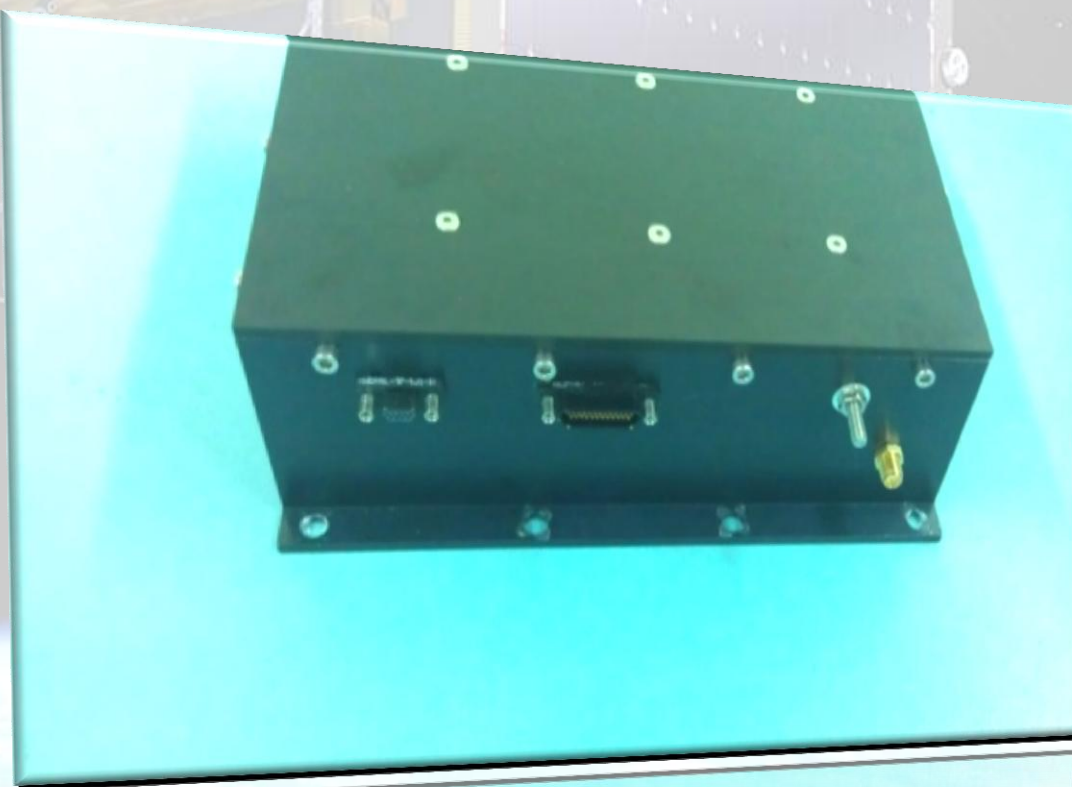
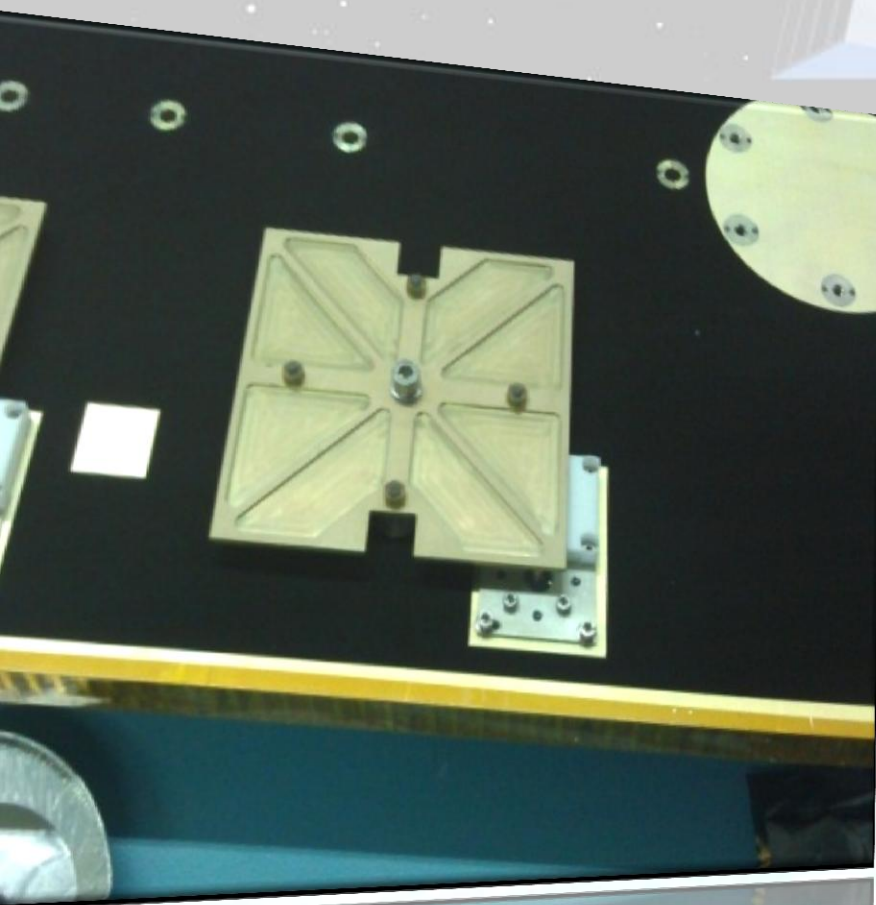
To enhance surveillance
and reliability worldwide

To increase flight safety
even further



Prototype of constellation payload under development, funded by TAS-D and ESA.

DLR flight test



***Experimental payload already flying
on ESA's ProbaV satellite***



Satellite ADS-B data gathered aboard ESA's ProbaV confirms feasibility !

Thank You *for your attention!*

Hannes Griebel

TAS-D

Satellite ADS-B Global Surveillance
Development

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Questions?